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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/044,558

01/11/2002

Jian Fan

10018003-1

9516

22879 7590 03/24/2011

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EXAMINER

LE, BRIAN Q

ART UNIT

PAPER NUMBER

2624

NOTIFICATION DATE

DELIVERY MODE

03/24/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/044,558	Applicant(s) FAN, JIAN	
	Examiner BRIAN Q. LE	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-17,20 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8,10,15-17 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 11-14, 20 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 26, 20, and 22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 26, 20 and 22 define a "computer readable storage medium", and the corresponding specification disclosure supports computer readable storage medium to covers both transitory and non-transitory media (Specification, [0092]), such as a "signal" and a tangible memory device respectively. Signals and other transitory media are non-statutory per se (In re Nuijten). The examiner suggests amending the claims to recite "non-transitory computer readable storage medium" to limit the scope to only statutory media, which would overcome this rejection.

Examiner's Note

1. Examiner has cited particular columns and line numbers or figures in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 6 and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al. U.S. Patent No. 5,583,659.

Regarding claim 1, Lee teaches a method to identify text-like pixels (characters) from an image (column 5, lines 63-65), the method comprising:

Classifying a plurality of individual pixels within a mask within the image as either edge or non-edge (column 4, lines 23-25), wherein a pixel (i,j) is located at the center of mask (abstract and column 4, line 5);

Determining whether the pixel (i,j) is an edge pixel or a non-edge pixel (column 4, lines 23-25); and

Determining of whether the pixels having connectivity (the determination of window pixels around pixel (i,j) of having a connectivity that is by the determination of gradient strength of pixels to be associated with a specific window of pixels) (column 4, lines 5-21) (column 4, lines 5-21) with the pixel (i,j) (column 4, lines 5-21) are edge pixels or non-edge pixels (column 4, lines 22-25 and column 7, lines 59-61); and

Performing, by a computer (digital image processor) (column 6, lines 15-20), edge-bounded averaging (column 4, lines 29-31) to determine line segments (determine line art which

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includes graphs, maps, characters, line (skeletal), textual letters and numbers) (column 5, line 60 to column 6, line 2), wherein the edge-bounded averaging includes finding one of either:

Based on the determining of whether pixels having connectivity with the pixel (i,j) are edge pixels or non-edge pixels (base on the determination of whether each image pixel (I,j) is near an edge or not) (column 4, lines 22-26), determining an average value of only the edge pixels having connectivity with pixel (i,j), in response to determining that pixel (i,j) is an edge pixel (calculation of average edge pixels if determine that the pixel (i,j) lies in the vicinity of an edge) (column 8, lines 34-43).

For claim 2, Lee further teaches the method further comprising:

(c) examining sub-blobs of pixels (the analysis of gradient strength by pixel in pixel window) within the image (column 7, lines 35-45); and

(d) performing sub-blob connectivity analysis (perform analysis determine whether the pixel is in a vicinity of edge in a window of pixels of the image) (column 7, lines 55-67).

Referring to claim 3, Lee teaches the method further comprising:

(e) identifying and classifying edges of pixels within the image (column 4, lines 23-25);

(f) performing filling to further classify pixels within the image (the step of re-assigning, correcting and merging pixels into either black or white pixels using gray-scale analysis) (column 8, lines 1-33).

(g) performing consistency analysis of pixels within the image (a test to determine whether pixel lies in a vicinity of an edge of an image) (column 7, lines 59-62).

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(h) performing pixel connectivity analysis of pixels within the image (perform analysis determine whether the pixel is in a vicinity of edge in a window of pixels of the image) (column 7, lines 55-67); and

(i) identifying text pixels within the image (column 5, line 64 to column 6, line 8).

For claim 6, Lee discloses the method further comprising smoothing the image (to classify pixels in image region of uniform tone and to remove boundary artifacts) (column 12, lines 50-52 and column 13, lines 10-12).

For claim 23-25, please refer back to claims 1-3 for the teaching and explanations.

Regarding claim 26, please refer back to claim 1 for further teachings and explanations. In addition, Lee teaches a computer readable storage medium with computer programs comprising instructions to process digital image and aforementioned limitations in claim 1 (system with digital processor) (column 6, lines 15-44).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee et al. U.S. Patent No. 5,583,659 and Kodaira et al. U.S. 6,868,183 as applied to claim 1 above.

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Regarding claim 5, Lee does not explicitly teach the method comprising performing color space conversion of the image. Kodaira teaches a method of processing text-like pixels (column 4, lines 58-65) comprises a color space conversion mean (column 16, lines 1-20). Modifying Lee's method of processing text-like pixels according to Kodaira would be able to allow the color conversion capable from one color space to another. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Lee according to Kodaira.

3. Claims 8, 10, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee et al. U.S. Patent No. 5,583,659 and Hashimoto et al. U.S. 6,987,045 as applied to claims 1-3 above.

Regarding claim 8, as discussed in claims 1-3, Lee teaches a method of pixels classification and edge processing. However, Lee does not explicitly teach the method of classifying edges of pixels wherein pixels can be classified as non edge, white edge or black edge. Hashimoto teaches a method of processing text-like of the image (character edge processing) (abstract) wherein pixels are classified as non edge (column 11, lines 42-47). Modifying Lee's method of processing text-like pixels according to Hashimoto would be able to classify pixels of image to more specific regions whether black edge, white edge or no edge for further processing. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Lee according to Hashimoto.

For claim 10, Hashimoto also teaches the method wherein classifying line segments of pixels starting from a first side of a line proceeding to a second side of the line identifying

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consecutive segments of pixels as non edge, white edge or black edge (column 4, lines 64-67 to column 5, lines 1-11).

As to claim 15, Lee discloses the method wherein step (h) performing pixel connectivity analysis of pixels within the image (perform analysis determine whether the pixel is in a vicinity of edge in a window of pixels of the image) (column 7, lines 55-67) comprises:

Identifying aggregates of pixel having been identified as candidates for text, the aggregates being sub-blobs (sum of all the gradient intensity values in a window) (column 10, lines 20-25); and

Collecting statistics with respect to each sub-blob, wherein said statistics are selected from the group consisting of total number of pixels (absolute sum) (column 7, lines 15-40).

Regarding claim 16, Hashimoto further teaches the method wherein step (c) examining sub-blobs of pixels within the image comprises: examining each sub-blob to determine whether it is non text (the process of differentiate in gradation of target pixel and each of the eight adjacent pixels to determine non-edge which also is non text since Hashimoto teaches text's edge processing) (column 4, lines 64-67 to column 5, lines 1-11).

Regarding claim 17, please refer back to claims 10 and 16 for further teachings and explanations.

Allowable Subject Matter

1. Claims 7, 9, 11-14, 20, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Brian Q Le/

Primary Examiner, Art Unit 2624

Thursday, March 17, 2011